

We Claim:

1. A transparent data path architecture for an optical-electrical-optical (OEO) switch comprising:
means to recover a data rate from an incoming serial signal;
means to monitor signal quality of the incoming signal; and
means to provide data integrity across the transparent switching fabric.
2. The transparent data path architecture as defined in claim 1 wherein said architecture is independent of input data rate.
3. The transparent data path architecture as defined in claim 2 having means to switch an incoming signal independent of data protocol.
4. The transparent data path architecture as defined in claim 3 wherein said means to recover a data rate from an incoming signal is capable of recovering a data rate from a wide range of data rates.
5. The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by adding data bits.
6. The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by changing data bits.
7. The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by deleting data bits.
8. The transparent data path architecture as defined in claim 1 having means to extract layer-1 performance data from the incoming signal in a non-intrusive manner.
9. The transparent data path architecture as defined in claim 1 having means to extract layer-1 and layer-2 performance data from the incoming signal in a non-intrusive manner.

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10. The transparent data path architecture as defined in claim 1 having an active switching fabric plane and a back-up switching fabric plane.
11. The transparent data path architecture as defined in claim 10 wherein data integrity is monitored across the active switching fabric plane and the back-up switching fabric plane.
12. The transparent data path architecture as defined in claim 11 having means to select between said active switching plane and said back-up switching plane based on quality of data integrity between said switching fabric planes.
13. The transparent data architecture as defined in claim 1 having means to provide line loopback of a signal having undergone re-shaping, re-amplification and re-shaping in a clock data recovery unit.
14. The transparent data architecture as defined in claim 1 having means to provide loopback functionality wherein a signal is looped back through either the active switching fabric plane or the back-up switching fabric plane.
15. A method of providing data integrity of serial data signal through a transparent data path architecture of an optical-electrical-optical (OEO) switch, the method comprising:
providing means to recover a data rate from said incoming serial data signal;
providing means to switch a signal across a switching fabric, the switching fabric including an active fabric and a back-up fabric;
monitoring signal quality of the signal across respective switching fabrics; and
selecting the signal across respective switching fabrics having a higher signal quality.
16. The method as defined in claim 15 wherein said transparent architecture is independent of data rate and data protocol.

17. A data rate and protocol independent data path architecture for an optical-electrical-optical (OEO) switch comprising:
- means to recover a range of signal data rates from an incoming serial signal;
 - means to switch any signal, independent of data protocol;
 - means to switch any signal across the switch without modifying the data signals;
 - means to monitor signal quality of the incoming signal, independent of data rate or protocol;
 - means to extract layer 1 and 2 performance data from the signal in a non-intrusive manner; and
 - means to provide data integrity across the transparent switching fabric.